

# **DEFENSE LOGISTICS AGENCY**

**AMERICA'S COMBAT LOGISTICS SUPPORT AGENCY**

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## **Seven Principles of High Performance Buildings**

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# Five Strategic Goals

- Guiding Principles in the Energy & Water Strategy
  - Decrease Energy waste in all systems, processes and facilities;
  - Increase energy efficiency in all new, replaced or renovated equipment or facilities;
  - Improve energy security by reducing dependence on fossil fuels and increasing production of renewable & alternative energy sources and supplies;
  - Reduce wasteful water consumption; and
  - Decrease the impact of Energy & Water use on the environment





# Existing Buildings





# 7 Principles of High Performance Bldgs

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- High Performance Building Design Principles
  - Eliminate Thermal Bridges
  - Sealed Envelopes –  
( $< .25$  cfm/sqft at 0.3 iwg or 75Pa)
  - High R-values (Roofing, Outer Walls, Stem Wall)
  - Passive Solar & Shading/Encased Operational Windows
  - Heat Transfer Intake to Exhaust
  - Automated Controls on all Energy Devices
  - Radiant heating/cooling

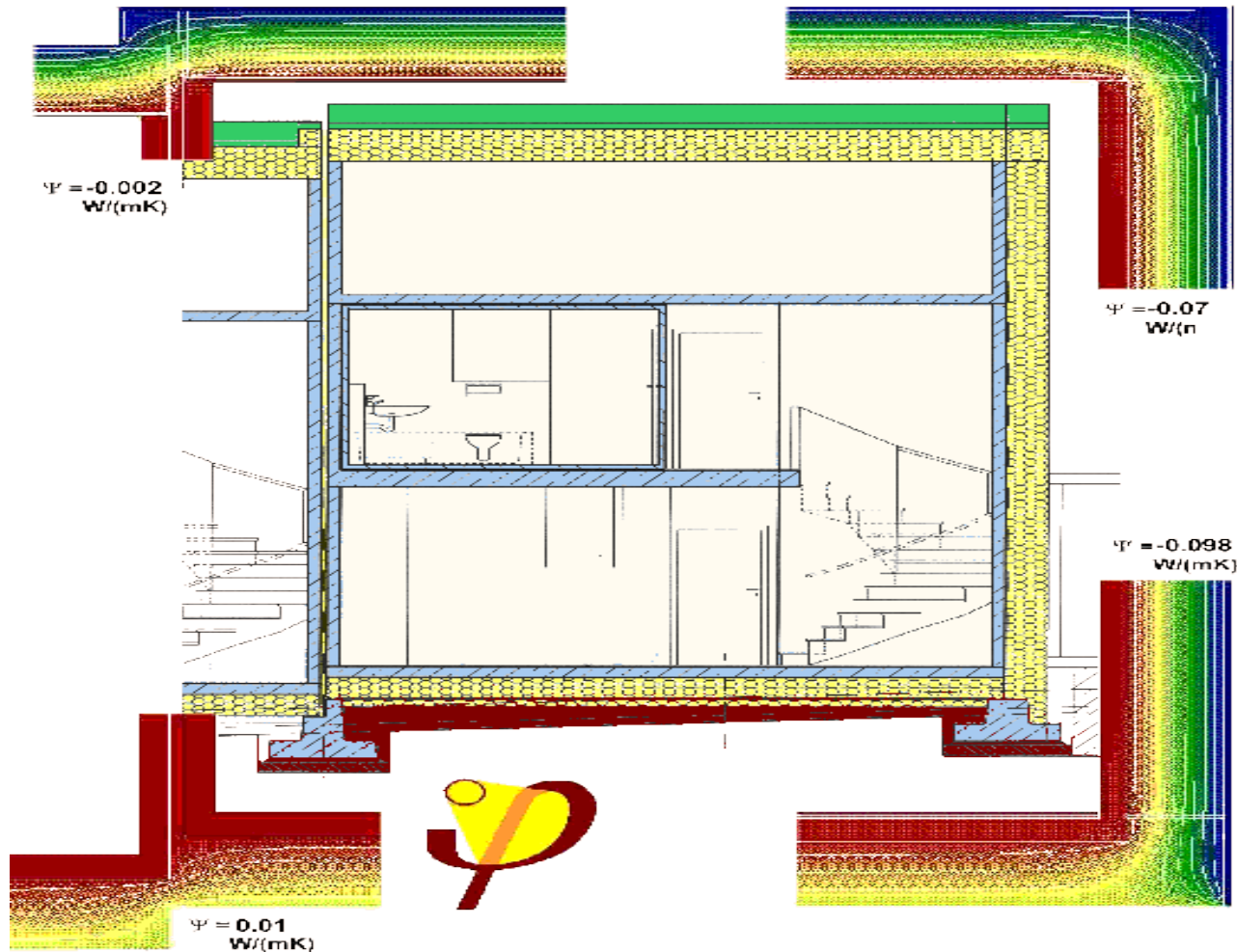




# 7 Principles of High Performance Bldgs

## Eliminate Thermal Bridges

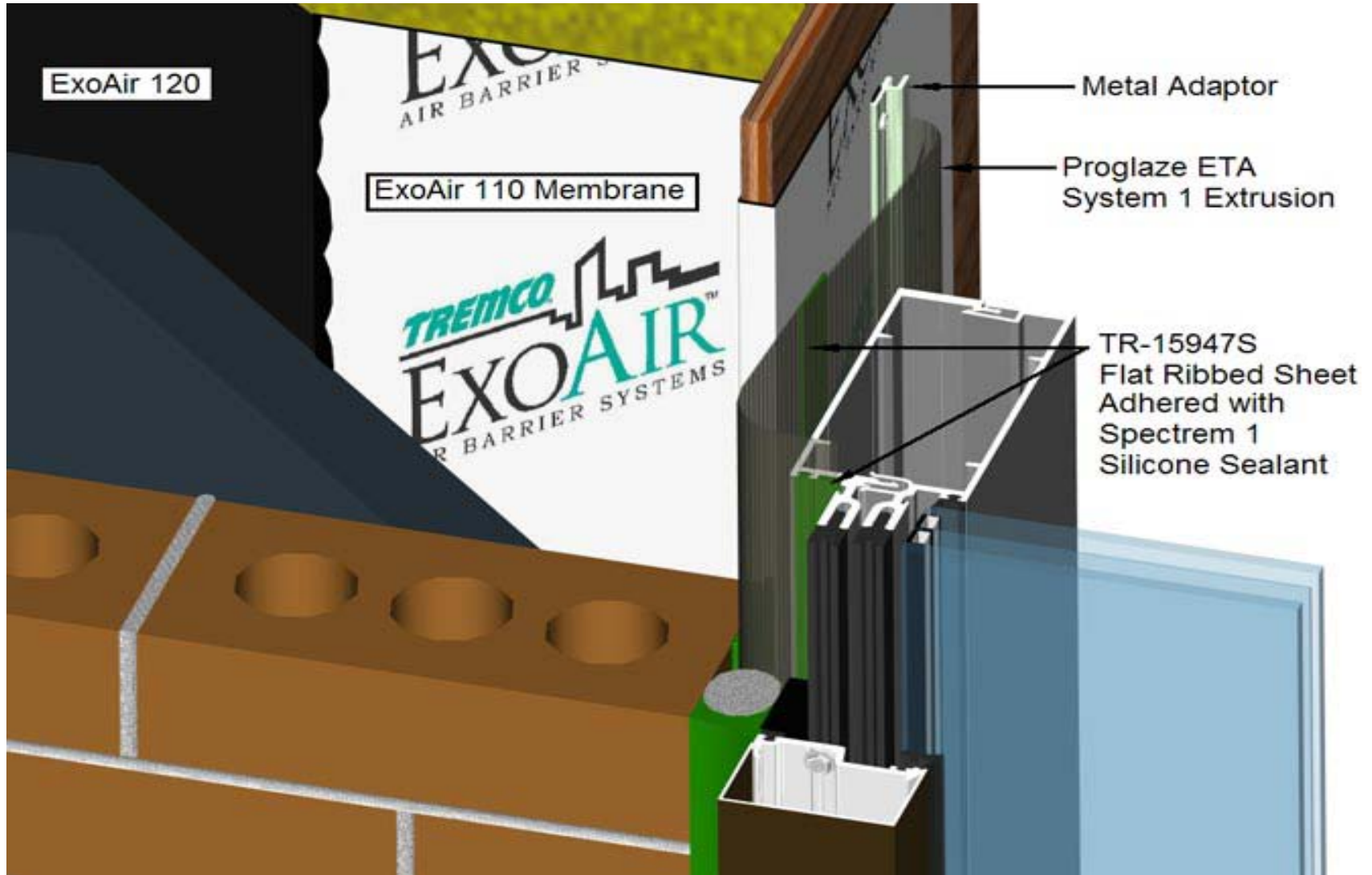
section of a passive house avoiding thermal bridges





# 7 Principles of High Performance Bldgs

Sealed Envelopes – ( $<.25$  cfm/sqft at 0.3 iwg or 75Pa)





# 7 Principles of High Performance Bldgs

High R-values (Roofing, Outer Walls, Stem Wall)







# 7 Principles of High Performance Bldgs

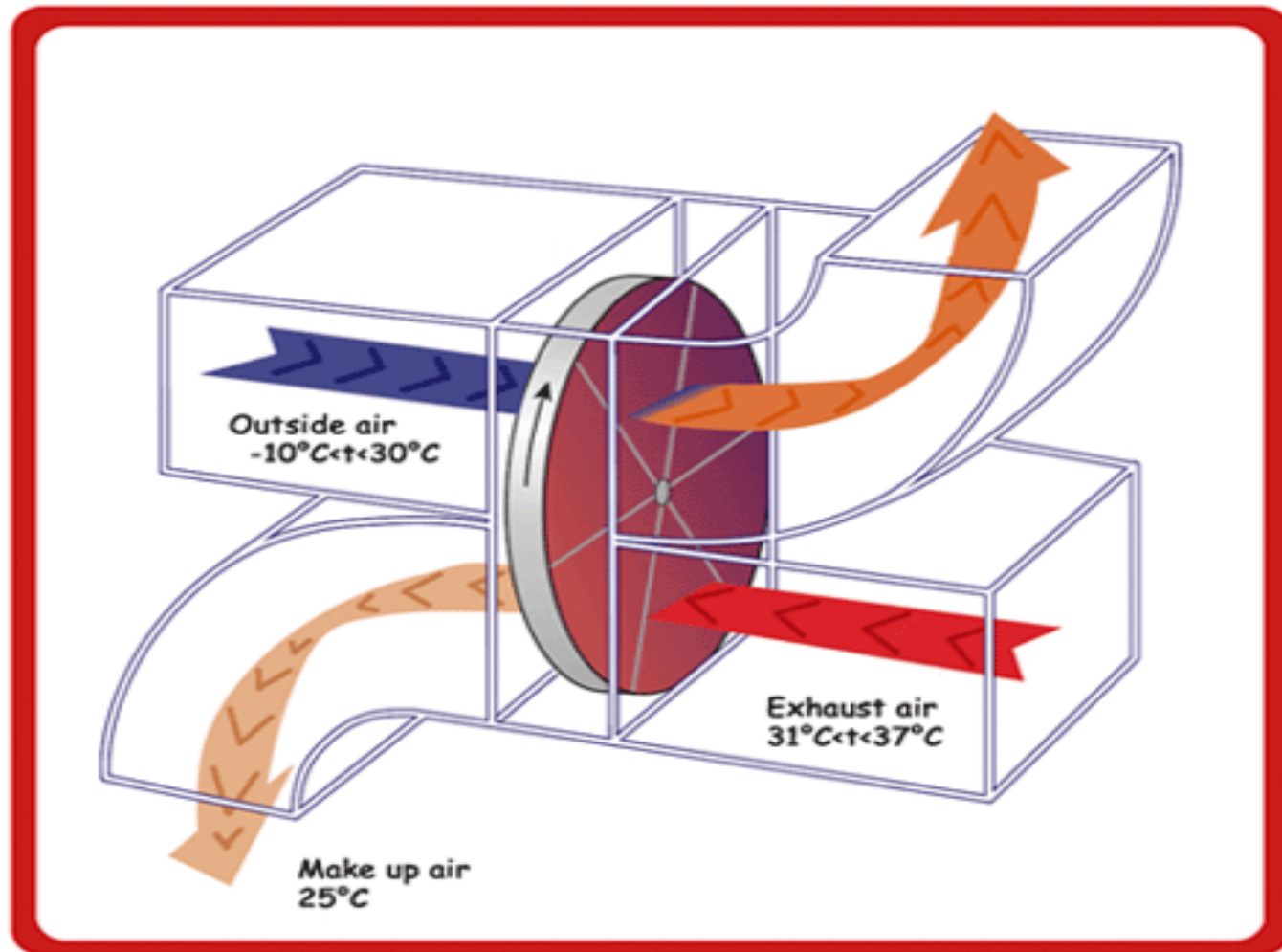
## Passive Solar & Shading/Encased Operational Windows





# 7 Principles of High Performance Bldgs

## Heat Transfer Intake to Exhaust

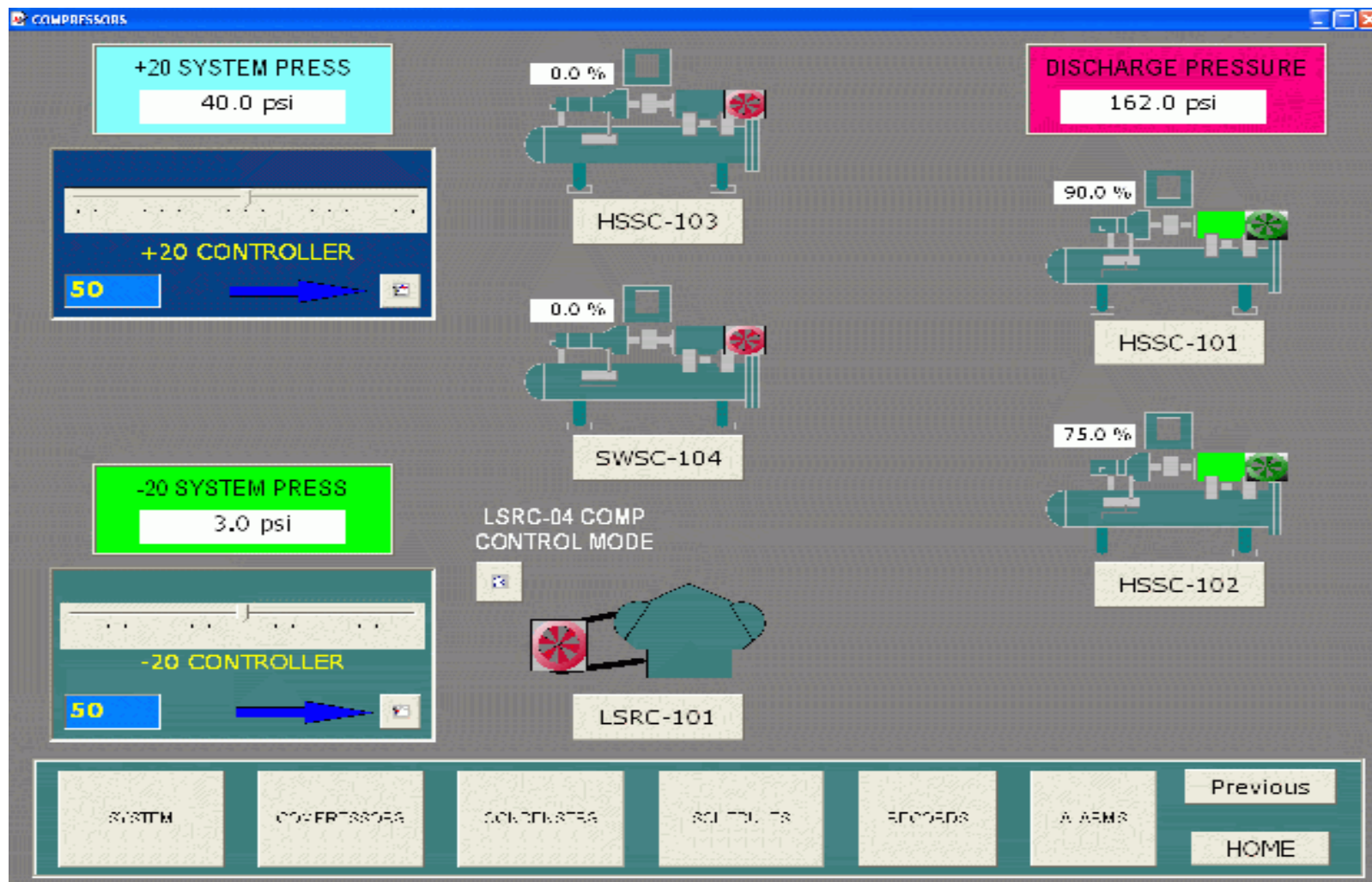


A diagram of a rotary heat exchanger, or "heat wheel" (From Uptime Technology BV)



# 7 Principles of High Performance Bldgs

## Automated Controls on all Energy Devices







# 7 Principles of High Performance Bldgs

## Radiant heating/cooling







# Way Ahead

- As Industry LEADERS
  - Highlight energy reduction as an Organization imperative
  - Use leadership to change organizational actions and wasteful energy processes
  - Ensure construction standards incorporate high performance design principles
  - Support Energy Report Cards for all managers at all levels
  - Practice what you preach
- With DoD Programs
  - Support federal policy and requirements that facilitate achieving Energy & Petroleum Reduction Goals
  - Implement energy efficiency improvements in all new/remodel projects
  - Implement greater use of renewable energy sources in designs
  - Require management accountability for the use of all utilities

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WARFIGHTER SUPPORT ENHANCEMENT

STEWARDSHIP EXCELLENCE

WORKFORCE DEVELOPMENT